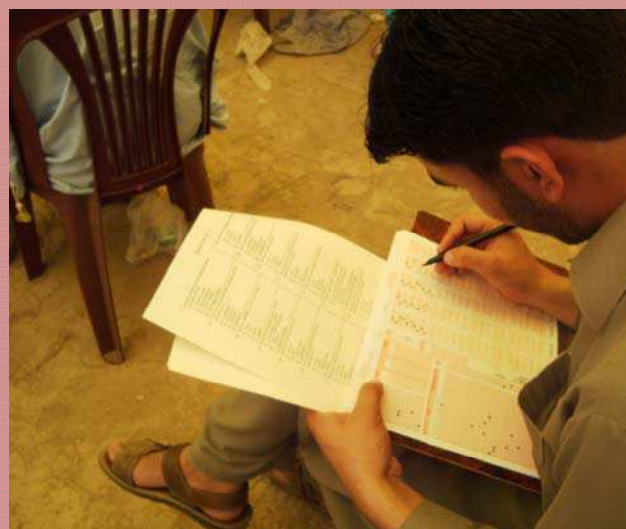


EDUCATIONAL TESTING & EVALUATION AGENCY



STUDENTS GUIDE FOR ENTRANCE TEST



FOR MEDICAL, ENGINEERING AND OTHER ETEA TESTS

PREFACE

The need of the day is to provide the quality education to the upcoming generation. ETEA has the goal to make it able. In this mean time the students are facing different hurdles in study preparation. Many students are failed to know how to attempt the ETEA's Test in a good way. For this I make a try to help out the students.

This book is here to help you get your job done. In general, you may use this book to prepare yourself for ETEA Entrance Test. This book will help you, how to attend the paper in a proper manner.

AQEEL AHMAD

Assistant Programmer,
ETEA

KHYBER PAKHTUNKHWA EDUCATIONAL TESTING & EVALUATION AGENCY

Khyber Pakhtunkhwa Educational Testing and Evaluation Agency, is an educational entity established in November, 1998, by the Government of Khyber Pakhtunkhwa for the development of resources and system for the conduct of educational evaluation and testing for the educational evaluation and testing for the educational institutions in transparent, uninfluenced and academically sound manner.. It is supervised by a Board of Governors, headed by the Chief Minister, Khyber Pakhtunkhwa. The Education Minister is the Vice Chairman and Secretary Higher Education is one of the members. The Executive Director ETEA is the Secretary of the Board.

OBLIGATIONS OF ETEA

The Agency is responsible for the educational evaluation of educational institutes in general and for admission to the professional institutions providing quality education in particular. ETEA is striving to achieve the testing and evaluation objectives in a manner that may inculcate the spirit of inquiry, application and research among students, during study at colleges and school.

ENTRANCE TESTS

Entrance tests have been in practice in our country for many years in selection of candidates for entry to several professions e.g. Armed Forces and Civil Services. These tests are being conducted by most of the private institutions and universities in Pakistan such as AKU, GIK institute, NUST, LUMS, etc and in all professional and Cadet Colleges under the control of Ministry of Defence.

Entrance Test devolves on the students the responsibility to concentrate on the acquisition of ability and skill rather than resorting to parrot like memorizing. Through understanding of the conceptual parts of the contents of the care subjects is the key to success in the test. Full concentration would guarantee speed and accuracy in doing the MCQs.

ETEA has been conducting Entrance Test for admission to the KPK Universities of Engineering and Technology and to the Medical and Dental Colleges of Khyber Pakhtunkhwa since 1998. It has also conducted Entrance Tests for various institutes also.

As the candidates are provided with a computer-readable answer sheet and they have to fill the answers on that sheet only, therefore some guide lines regarding the question paper, distribution of marks and filling of Answer sheets are given for their guidance.

COMPOSITION OF THE QUESTION PAPER

Composition of the question paper for the Entrance Test is as follows.

SUBJECTS	Number of MCQs		
	Medical Group	Computer Engineering	Other Branches of Engineering
Physics	60	60	60
Chemistry	60	-----	60
Mathematics	-----	60	60
Computer Science	-----	60	-----
Biology	60	-----	-----
English	20	20	20
Total	200	200	200

1. The questions, contained in the question paper, are not arranged subject-wise. The MCQs are scrambled into four versions A, B, C and D. Version of the paper given to a Candidate is called **TEST FORM** and needs to find the correct match of answer sheet.
2. All 200 questions are compulsory and carry equal marks. Marks are awarded for the attempted questions only.
3. Each correct answer carries '4 marks' and each wrong answer '-1 mark'.
4. Double or multiple marked of each answer are considered as wrong answer.

INSTRUCTIONS FOR THE CANDIDATES

1. Date, time and information about the test centre are given at the time of registration/shown in the admit card (Roll Number Slip). Schedule of the test is also publicized through advertisement in the print media. The candidates are required to reach the venue of the test well in time to avoid any problem.
2. All the seats are arranged in an order of I.D Numbers (Identification Numbers/Roll Numbers) and the candidates have to look for their seats bearing their I.D Nos. pasted on it.
3. Candidates are required to bring with them clip board and black/blue thin tipped marker to mark the Pink Answer Sheet (Pencil are strictly prohibited to use.)
4. Candidates are NOT allowed to take Calculators, Cellular Phones, Pages, and Watches having Calculators, Electronic Devices, Books/Booklets, any kind of paper or cheating material into the test centre. Possession of any one of these will take away the candidates' right of entry into the Test Centre and lead to his/her disqualification.
5. Candidates are required to write their name and ID Number on the question paper immediately after getting it from the invigilator.
6. Candidates are advised to handle the PINK ANSWER SHEET carefully and protect it from sweat and dust and not to fold or bend the Answer Sheet because it will have to go through computers for scoring.
7. Nothing is to be written on the back of the PINK ANSWER SHEET.
8. Candidates are cautioned to mark their answers on the PINK ANSWER SHEET and NOT on the Question Paper; otherwise they will not be awarded any mark.
9. Candidates are advised to read the question and the given options very carefully and mark the correct answer on the pink answer-sheet, because once marked it cannot be avoided.
10. Use of any type of Eraser or covering fluid can result in damaging the sheet which in turn may affect the correct marking by the OMR. This practice should therefore be avoided.
11. Any extra sheet is provided at the end of question paper for rough work. This sheet is not to be detached from the question paper.
12. The invigilators will NOT answer any query of the candidates during the test regarding the contents of the test. Candidates will have to rely on their own understanding of the paper.
13. At the end of the test, the candidates will have to return both the question paper as well as the answer sheet to the invigilator concerned. Any slippage on this could cost the candidate the entry test.
14. Results are made available on ETEA's website www.etea.edu.pk within 24-48 hrs.
15. Information about the re-totaling of the marks of Entry Test will be present on the Instruction sheet on the same day of test.

PINK ANSWER SHEET

Pink Answer Sheet is meant to be scanned or scored by an OPTICAL MARK BUBBLE READER (OMR). Answer sheet, after being marked with black or blue marker/ball-pen is allowed to pass through the OMR just like a sheet of paper passes through a laser printer. The OMR detects the marks on the Pink Answer sheet and compares them with the correct answers. By a comparison of the two the OMR is in a position to tell how many “right” and “wrong” answers have been marked on the Answer sheet.

As the space for marking answers is very precisely laid out on the answer sheet, it is essential that marks are very carefully made in the designated spaces which should not spill over.

- ✓ Your Name, I.D Number and Test Form (Version of Question Paper) is already written on the Pink Answer Sheet.
- ✓ Assure yourself that you get correct Pink Answer Sheet from the invigilator.
- ✓ The correction is made confirm from your I.D Number and Name.
- ✓ You should have to write correct code of your Board.
- ✓ Write your Name, Date etc on the Pink Answer Sheet in the blanks mentioned.
- ✓ Do not write anything on the back of Pink Answer sheet.

SAMPLE OF PINK ANSWER SHEET

The image shows a sample of a Pink Answer Sheet for the ParSCORE™ test. It is divided into two main sections: Student Enrollment Sheet and Score Sheet.

Student Enrollment Sheet:

- I.D. NUMBER:** A grid of 10 columns and 10 rows for entering the student's ID number.
- PHONE NUMBER:** A grid of 10 columns and 10 rows for entering the student's phone number.
- LAST NAME, FIRST NAME, M.I., CODE:** Fields for entering the student's name and a unique code.
- TEST FORM:** A grid of 10 columns and 10 rows for entering the test form number.
- SUBJ. SCORE:** A grid of 10 columns and 10 rows for entering the subject score.

Score Sheet:

- TEST FORM:** A grid of 10 columns and 10 rows for entering the test form number.
- QUESTIONS:** A grid of 200 questions, numbered 1 to 200. Each question has four multiple-choice options: A, B, C, and D.

The entire sheet is designed for optical marking, with clear lines and bubbles for each answer choice.

**I.D Number (Roll
Number)**
(Already Printed)

**Test Form, Version of
Question Paper
(Already Printed)**

**Name of the
Candidate (Already
Printed)**

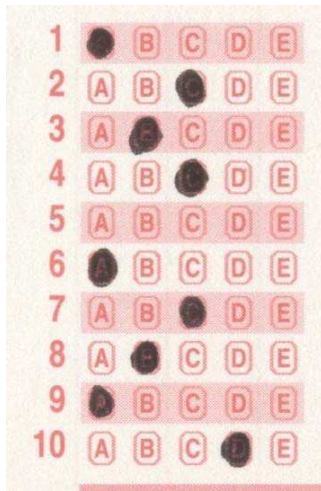
Candidate should have to fill this portion by self as fallow.

NAME Shooy Khan
SUBJECT Medical
DATE 12/10/2010 HOUR/DAY Shuttle

Code of the Board. To be written by the Candidate.

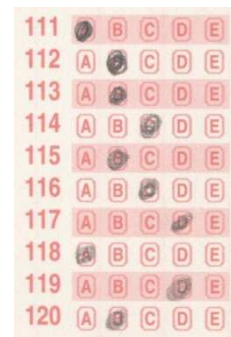
MARKING (OR FILLING) THE ANSWER SHEET.

The Correct way of marking an Answer is given below.



CORRECT: Candidates should have to fill the answers in this way.

INCORRECT FILLING WAYS.



All of the above are incorrect ways of filling the Pink Answer Sheet. Using these cause serious damage to the marking. Candidate should have to fill correctly for positive result.

BACK OF THE PINK ANSWER SHEET.

ParSCORE™ Mini Blue Book

NAME Shaoor Khai
LAST FIRST MIDDLE
SUBJECT Medical
DATE 12/10/2010 HOUR/DAY Sh-kh

DO NOT WRITE ANYTHING HERE

Write Your Name, Date, subject as Medical/Engineering etc, as shown here.

Do not write anything else.

ATTENDANCE SHEET

Here is a sample of Attendance Sheet.

PESHAWAR TEST MANAGER . _____
MEDICAL ENTRANCE TEST 15-07-2012

ID. NO	NAME	Test Form	Ans. Sheet Serial No	Signature
00001	FOZIA HALEEM	A		
00002	MANZOOR AHMAD SHAH	B		
00003	QURAT UL AIN	C		
00004	SIDRA NAWAZ	D		
00005	SHADAB SALEEM	A		
00006	MUHAMMAD TAYYEB KHAN	B		
00007	NASREEN	C		
00008	MUHAMMAD USMAN	D		
00009	JAMSHID KHAN	A		
00010	ADIL NAWAZ KHAN	B		
00011	FAISAL HAYAT	C		
00012	FAHAD NAEEM	D		

TOTAL ABSENT. _____ Page 1 of 1124

Attendance Sheet contains the following.

1. Your I.D Number, Name and Test form are printed already on the sheet.
2. Candidates have to write the correct serial number on the sheet against its own I.D Number and Name.
3. Candidates are required to sign the sheet in a proper area.
4. If there is some mistake occurs in the Attendance Sheet like mistake in the Spelling of the Candidate's name etc. In this case Candidate is requested to correct it while signing the Sheet.

NOTE: Correction of the Name is very important because it may cause problem while receiving Marks Certificate.

PESHAWAR
MEDICAL ENTRANCE TEST 15-07-2012

TEST MANAGER . _____

ID. NO	NAME	Test Form	Ans. Sheet Serial No	Signature
00037	SARA	A	201129	Sara
00038	ASSA ULL	B		
00039	SADDAM HUSSA	C		
00040	ZARAFSHAN NAWAZ	D		

201129

STUDENT ENROLLMENT SHEET

I.D. NUMBER: 00037

PHONE NUMBER: 0000000000

TEST FORM: A

LAST NAME: SARA

FIRST NAME: A

M.I.:

CODE:

SUBJ SCORE:

00018	TAHIR KHAN JAN	B
00019	BAKHTAWAR MEHNAZ	C
00020	SOBIA ZOREEN ZAREEN	D
00021	MUHAMMAD RASOOL KHAN	A

CANDIDATES ARE REQUESTED TO MAKE CHANGE LIKE THIS.

QUESTION PAPER

1. The question paper has four versions such as A, B, C and D.
2. The questions, contained in the question paper, are not arranged subject-wise. The MCQs are scrambled into four versions A, B, C and D.
3. Version of the paper given to a Candidate is called **TEST FORM** and needs to find the correct match of answer sheet.
4. There is a header portion of the question paper containing I.D Number, Name, Father Name, Domicile etc. Candidates are required to fill out these immediately after getting the question paper.
5. Candidates are requested to get correct version of question paper from the invigilator.
6. If there is some mistake in question paper like page missing etc. Candidate should have to contact with ETEA Officials immediately.
7. Remember that marking of answers on question paper will be considered wrong and be awarded zero marks.
8. There is a plain page at the end of question paper for rough work. Candidates are requested to do rough work on that page.

STUDENT ENROLLMENT SHEET

I.D. NUMBER: 01477

PHONE NUMBER: _____

LAST NAME: SHAOORKHAN

FIRST NAME: _____

M.I.: _____

CODE: _____

NAME: Shaoor Khan

SUBJECT: _____

DATE: 12/12/2010

ENTRANCE TEST FOR ADMISSION TO MEDICAL & DENTAL COLLEGES OF KHYBER PAKHTUNKHWA - 2012

I.D NUMBER: 01477

NAME: Shaoor Khan

FATHER'S NAME: Imdad Khan

DISTRICT OF DOMICILE: Peshawar

TIME ALLOWED: 3 Hour

MAXIMUM MARKS: 800

B

1) Time taken by light to reach from sun to earth is:

A) 10 min 20 sec

B) 8 min 20 sec

C) 5 min 20 sec

D) Infinity

2) A precise measurement is one which has:

A) Less uncertainty

B) Maximum precision

C) Absolute precision

D) None of these

SAMPLE MCQS

PHYSICS

- 1) Time taken by light to reach from sun to earth is:
A) 10 min 20 sec
B) 8 min 20 sec
C) 5 min 20 sec
D) Infinity
- 2) A precise measurement is one which has:
A) Less uncertainty
B) Maximum precision
C) Absolute precision
D) None of these
- 3) Two forces of 12 N and 6 N are applied simultaneously to a body. The maximum magnitude of their resultant is:
A) 24 N
B) 30 N
C) 18 N
D) 36 N
- 4) The dimensions of Torque are:
A) $[MLT^{-2}]$
B) $[ML^2T^2]$
C) $[MLT^{-1}]$
D) $[ML^2T^{-2}]$
- 5) The vector product of vector \vec{A} by itself is:
A) 1
B) Zero
C) -1
D) None of these
- 6) The point at which an applied force produces a linear acceleration but no rotation is:
A) Centre of gravity
B) Centre of body
C) Weight of body
D) None of these
- 7) The motion of the rocket in space is according to law of conservation of:
A) Energy
B) Charge
C) Mass
D) Momentum
- 8) The span of broad jump depends upon:
A) Mass of jumper
B) Vision of jumper
C) Angle of projection of jumper
D) Height of jumper
- 9) If the scalar product of two non-zero vectors \vec{A} and \vec{B} is zero, then the magnitude of their vector product will be:
A) AB
B) Zero
C) $AB \sin \theta$
D) $AB \cos \theta$
- 10) The dimensions of impulse are similar to the dimensions of:
A) Torque
B) Work
C) Momentum
D) Force
- 11) Which of the following type of forces can do no work?
A) Elastic force
B) Frictional force
C) Gravitational force
D) Centripetal force

- 12) If a machine does 550 Foot Pound work in one second, its power will be:
 - A) 550 watt
 - B) 746 watt
 - C) 746 horse power
 - D) 550 horse power
- 13) The escape velocity for a ball of mass 0.25 kg will be:
 - A) 44 km sec⁻¹
 - B) 11 km sec⁻¹
 - C) 2.75 m sec⁻¹
 - D) 0.25 m sec⁻¹
- 14) A two meter high tank is full of water. A hole is made in the middle of the tank. The speed of efflux will be:
 - A) 4.4m sec⁻¹
 - B) 6.2m sec⁻¹
 - C) 5.1m sec⁻¹
 - D) 4.9m sec⁻¹
- 15) The angular velocity of earth in one rotation (daily) is:
 - A) $\frac{\pi}{2} \text{ rad hr}^{-1}$
 - B) $\frac{\pi}{6} \text{ rad hr}^{-1}$
 - C) $\frac{\pi}{3} \text{ rad hr}^{-1}$
 - D) $\frac{\pi}{12} \text{ rad hr}^{-1}$
- 16) When the drag force on the droplet becomes equal to its real weight, the droplet will fall with:
 - A) Maximum acceleration
 - B) Minimum acceleration
 - C) Zero acceleration
 - D) Acceleration due to gravity
- 17) One light year is equal to:
 - A) $9.46 \times 10^{15} \text{ km}$
 - B) $9.46 \times 10^{15} \text{ m}$
 - C) $9.46 \times 10^{15} \text{ cm}$
 - D) $9.46 \times 10^{15} \text{ ft}$
- 18) The acceleration due to gravity on a planet having a mass and radius half of the earth will be equal to:
 - A) 2g
 - B) g
 - C) g/2
 - D) g/4
- 19) The S.I. unit of the spring constant k is identical to:
 - A) Energy
 - B) Pressure
 - C) Density
 - D) Surface tension
- 20) Through which medium, the sound waves travel faster?
 - A) Oxygen
 - B) Carbon dioxide
 - C) Hydrogen
 - D) Nitrogen
- 21) As the pressure of medium increases, the speed of sound in medium:
 - A) Increases
 - B) Decreases
 - C) Remains constant
 - D) None of these
- 22) The motion of the source of sound with respect to stationary listener causes a change in:
 - A) Intensity of sound
 - B) Frequency of sound
 - C) Velocity of sound
 - D) None of these
- 23) Which of the following cannot be polarized?
 - A) Sound waves
 - B) X-rays
 - C) Radio waves
 - D) Light waves
- 24) The colour of sky is blue due to:
 - A) Interference of light
 - B) Diffraction of light
 - C) Polarization of light
 - D) Scattering of light

- 25) The magnifying power of magnifying glass is 6. Its focal length is:
A) 6 cm
B) 3 cm
C) 4 cm
D) 5 cm
- 26) The ability of an instrument to reveal the minor details of an object under examination is its:
A) Linear magnification
B) Angular magnification
C) Resolving power
D) None of these
- 27) Propagation of light in an optical fiber requires that:
A) The light should be polarized
B) The light should be totally confined
C) The light should be dispersed
D) The light should travel along straight line
- 28) At constant temperature if the pressure of the gas is doubled, its volume becomes:
A) One half
B) Double
C) Four times
D) Remains the same
- 29) If the temperature of the source of heat increases the efficiency of a Carnot's engine:
A) Increases
B) Decreases
C) Remains constant
D) None of these
- 30) For irreversible cycle, the net change of entropy:
A) Remains constant
B) Increases
C) Decreases
D) None of these

CHEMISTRY

- 1) Which one of the following Grignard reactions could give rise to $\text{CH}_3\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{CH}_3$?
A) Propane & methyl Grignard
B) Butyl Grignard & acetaldehyde
C) Crotonaldehyde & ethyl Grignard
D) Ethyl Grignard & propionaldehyde
- 2) Acid HClO_4 , H_2SO_4 , HCl and HNO_3 have nearly equal strength in aqueous medium. The phenomenon is called:
A) Common ion effect
B) Levelling effect
C) Ionization
D) Titration
- 3) According to the Bronsted –Lowry concept, which of the following species cannot function as an acid?
A) SO_4^{2-}
B) H_3O^+
C) HSO_4^-
D) NH_4^+
- 4) Of the four chlorides listed below which does not readily dissociate to form ions in water?
A) NaCl
B) LiCl
C) AgCl
D) CaCl_2
- 5) Which of the following compounds has bonds formed by an overlap of sp and p orbitals?
A) BF_3
B) NH_3
C) BeCl_2
D) CH_4

- 6) The rate of reaction is defined as:
A) dc/dt
B) dt/dc
C) $dc \cdot dt$
D) $(dc)^2/(dt)^2$
- 7) To calculate the momentum of an electron, which of the formulas given below would be the most appropriate?
A) hV_2
B) meV
C) hV
D) meV_2
- 8) What is the right configuration of an element with 24 electrons?
A) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^6$
B) $1s^2 2s^2 3s^2 2p^6 3p^6 4s^2 3d^4$
C) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^4$
D) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 3d^5$
- 9) Which of the following reagents may not be used for the oxidation of aldehydes and ketones to organic acids?
A) $KMnO_4$
B) $K_2Cr_2O_7$
C) $LiAlH_4$
D) $KOCl$ & H_2SO_4
- 10) A reaction between CO and H_2O is $CO(g) + H_2O(l) \rightleftharpoons CO_2(g) + H_2(g)$ The unit of equilibrium for this reaction is:
A) mol/liter
B) liter/mol
C) Dimensionless
D) mol/cm^3
- 11) Which of the following groups is considered to have a deactivating effect during aromatic substitution?
A) $-OH$
B) $-NH_2$
C) $-CH_3$
D) $-CN$
- 12) Who postulated the following equation for energy emission when an electron drops from state n_2 to n_1 ?
 $\Delta E = E_1 - E_2 = -K[1/n_1^2 - 1/n_2^2]$
A) Einstein
B) Bohr
C) Rutherford
D) Heisenberg
- 13) Which of the following is responsible for an increase in the entropy of a gaseous system?
A) Increase in heating
B) Cooling the system
C) Heating followed by cooling
D) Compression at specific temperature
- 14) Which of the following compounds, when warmed with Fehling's solution, gives a red precipitate?
A) Methanol
B) Ethanol
C) Aldehyde
D) Ketone
- 15) During the electrolysis of a $CuCl_2$ solution, which of the following reaction is possible at the anode?
A) $2H^+O = O_2 + 4H^+ + 4e^-$
B) $Cu^{++} + 2e^- = Cu$
C) $2H^+ + 2e^- = H_2$
D) $Cu = Cu^{++} + 2e^-$
- 16) What causes a sharp increase in the energy with a further decrease in the distance between atoms A & B after bond formation?
A) Attraction of atoms A & B
B) Repulsion of nuclei of A & B and electrons of A & B
C) Attraction of nucleus of A and electron of B
D) Bond formation

- 17) Glass is an example of an amorphous solid which can be characterized as:
 A) A malleable solid
 B) A molecular solid
 C) Crystal-like in structure
 D) Very viscous fluid
- 18) Which scientist made the following proposal: "Equal volumes of gases, under the same conditions of temperature and pressure contain the same number of particles"?
 A) Gay –Lussac
 B) Curie
 C) Dalton
 D) None of the above
- 19) Which of the statements given below is NOT a property of ammonia?
 A) Is a Bronsted base
 B) Has ability to form complex
 C) May display acidic behaviour
 D) Can't be easily liquefied by cooling or compressing
- 20) When coal is heated (500 – 1000°C) in the absence of air, the process is called:
 A) Distillation
 B) Carbonization
 C) Cracking
 D) Reforming
- 21) The solubility product values for the following salts are given
 $\text{CuS} = 1.0 \times 10^{-10}$
 $\text{HgS} = 1.0 \times 10^{-15}$
 $\text{PbS} = 1.0 \times 10^{-20}$
 A) HgS will ppt first
 B) PbS will ppt first
 C) CuS will ppt first
 D) All three will ppt simultaneously
- 22) Which of the following reacts with hydrogen and nickel to form propane?
 A) $\text{CH}_3\text{CH}=\text{CH}_2$
 B) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
 C) $\text{CH}_3\text{CH}_2\text{CH}=\text{CH}_2$
 D) $\text{CH}_3\text{CH}=\text{C}(\text{CH}_3)_2$
- 23) Dry CO_2 is passed through Grignard reagent in the presence of ether as a solvent. The intermediate is decomposed with dil. HCl, which gives the compound:
 A) Primary alcohol
 B) Secondary alcohol
 C) Acetone
 D) Carboxylic acid
- 24) Which of the following elements mixes safely with hydrogen in dark, but reacts rather explosively with hydrogen in light?
 A) Nitrogen
 B) Phosphorus
 C) Chlorine
 D) Potassium
- 25) The solubility of solute depends on:
 A) Temperature of solution
 B) Quantity of solvent
 C) Quantity of solute
 D) All the three choices
- 26) 10 ml of 1.5M NaOH solution is neutralized by 20 ml of 'a' M HCl solution. The value of 'a' will be:
 A) 1.0
 B) 0.75
 C) 0.5
 D) 0.25
- 27) The log of rate constant of a reaction is:
 A) Directly proportional to temperature change
 B) Not effected by temperature change
 C) Inversely proportional to temperature
 D) Effected by activation energy not by temperature

- 28) Which of the salts below will produce an alkaline solution when dissolved in water?
- A) Na_2CO_3
 - B) NaCl
 - C) NaNO_3
 - D) Na_2SO_4
- 29) When salt of sodium such as NaCl is heated in a flame:
- A) Proton will leave the nucleus of Na
 - B) α -particles will be emitted
 - C) electron will move to higher orbit
 - D) Na-atoms will react with one another
- 30) How much heat is absorbed by 100 g of water when its temperature decreases from 25°C to 5°C ? (heat capacity is 4.2 J/gK)
- A) $84,000 \text{ J}$
 - B) $-2000/4.2 \text{ J}$
 - C) $2000/4.2 \text{ J}$
 - D) $-84,00 \text{ J}$

MATHEMATICS

- 1) The function $f : x \rightarrow \sqrt{x}$ is called:
- A) Identify function
 - B) Linear function
 - C) Square root function
 - D) None of the above
- 2) Which of the following is NOT the binary operation in \mathbb{N} :
- A) $+$
 - B) $-$
 - C) \cdot
 - D) None of the above
- 3) If $X = \{a, b, c, d\}$, $Y = \{1, 2, 3, 4\}$ and $g = \{(a, 3), (b, 1), (c, 2), (d, 4)\}$, then g is _____ function from X to Y :
- A) $1-1$
 - B) Onto
 - C) Bijective
 - D) None of the above
- 4) The transpose of a row matrix is a:
- A) Column matrix
 - B) Row matrix
 - C) Square matrix
 - D) None of the above
- 5) Range of $f(x) = x^2 + 1$ is:
- A) \mathbb{R}
 - B) $f(x) > 1$
 - C) $f(x) \geq 1$
 - D) ∞
- 6) If A, B, C are conformable for multiplication then $(ABC)^t =$
- A) $C^t B^t A^t$
 - B) $A^t B^t C^t$
 - C) $C^t A^t B^t$
 - D) $B^t A^t C^t$

7) $\lim_{x \rightarrow 0} \frac{\sqrt{1+x} - 1}{x} =$

- A) $\frac{0}{0}$
- B) $\frac{1}{2}$
- C) ∞
- D) 2

8) $\sin^2 x + \cos^2 x = 1$ is true for:

- A) One value of x
- B) Some values of x
- C) No value of x
- D) All values of x

9) $\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n =$

- A) e
- B) $\lim_{n \rightarrow 0} (1+n)^{\frac{1}{n}}$
- C) 1
- D) Both A and B

10) The series $a_1 + a_1 r + a_1 r^2 + \dots + a_1 r^{n-1} + \dots$ has

a sum $\frac{a_1}{1-r}$ if and only if:

- A) $r < 1$
- B) $|r| < 1$
- C) $|r| = 1$
- D) $|r| > 1$

11) $\lim_{n \rightarrow \infty} \log_{10} \left(\frac{2x^2 + 5x + 1}{20x^2 - 1} \right) =$

- A) $\frac{1}{10}$
- B) ∞
- C) -1
- D) 0

12) $\sum_{j=1}^{\infty} \frac{1}{2^j} =$

- A) 1
- B) ∞
- C) $\frac{1}{2}$
- D) $\frac{1}{2^n}$

13) If $f(x) = \frac{1}{x}$ and $g(x) = x^3$ then :

- A) $f \circ g < g \circ f$
- B) $f \circ g \neq g \circ f$
- C) $f \circ g = g \circ f$
- D) $f \circ g > g \circ f$

14) ${}^n C_r + {}^n C_{r-1} =$

- A) ${}^n C_r$
- B) ${}^n P_r$
- C) ${}^{n+1} C_{r+1}$
- D) ${}^{n+1} C_r$

15) $Y = -2^x$ is the reflection of:

- A) $Y = \frac{1}{2^x}$
- B) $Y = 2^x$
- C) $Y = 2^{-x}$
- D) $Y = \frac{1}{-2^x}$

16) By definition $n \frac{(A \cap B)}{n(B)}$ defines:

- A) $P\left(\frac{A}{B}\right)$
- B) $P\left(\frac{B}{A}\right)$
- C) $P(A \cap B)$
- D) $P(A \cup B)$

- 17) The inverse of $y = 2^x$ is:
 A) $y = \log_2 x$
 B) $y = 2^{-x}$
 C) $y = -2^x$
 D) None of the above
- 18) In the expansion $(1+x)^n$, if 'n' is rational then the number of terms are:
 A) $n+1$
 B) $n-1$
 C) Finite
 D) Infinite
- 19) The graph of $y^2 = 4ax$ is symmetric about:
 A) y-axis
 B) x-axis
 C) origin
 D) None of the above
- 20) If P_1 and P_2 are any two points on a coordinate line then $|P_1P_2|$ denotes:
 A) Directed distance
 B) Length
 C) Undirected distance
 D) Both B) and C)
- 21) $\frac{d}{dx} \frac{1}{g(x)}$ when $g(x) \neq 0$ is :
 A) $-g'(x)$
 B) $\frac{-g'(x)}{[g(x)]^2}$
 C) 0
 D) None of the above
- 22) $\sin 30^\circ \cdot \cos 60^\circ + \cos 30^\circ \cdot \sin 60^\circ =$
 A) 0
 B) $1/2$
 C) 1
 D) ∞
- 23) $\sin(\alpha + \beta) - \sin(\alpha - \beta) =$
 A) $2\cos\alpha \sin\beta$
 B) $2\sin\alpha \cos\beta$
 C) $2\sin\alpha \sin\beta$
 D) $-2\sin\alpha \sin\beta$
- 24) $\frac{d}{dx} a^x =$
 A) a^x
 B) $a^x \ln e$
 C) $\frac{a^x}{\ln a}$
 D) $a^x \ln a$
- 25) The result to find $y^{(n)}$, where $y^{(n)}$ denotes the n th derivative of a function is called:
 A) Leibnitz theorem
 B) Hero's formula
 C) Euler formula
 D) None of the above
- 26) $2\sin \frac{\theta + \phi}{2} \cdot \cos \frac{\theta - \phi}{2} =$
 A) $\sin \theta - \sin \phi$
 B) $\sin \theta + \sin \phi$
 C) $\cos \theta + \cos \phi$
 D) $\cos \theta - \cos \phi$
- 27) A function $f(x)$ in the interval $[a, b]$ is called increasing function at $x = a$ if:
 A) $f'(a) = 0$
 B) $f'(a) > 0$
 C) $f'' = 0$
 D) $f'(a) < 0$
- 28) $\int \sin kx \, dx =$
 A) $\sin kx + c$
 B) $\cos kx + c$
 C) $-\frac{\cos kx}{k} + c$
 D) None of the above

29) Which of the following curves are conic sections?

- A) Circle
- B) Parabola
- C) Ellipse
- D) All are conic sections

30) $\int e^{\sin x} \cos x \, dx =$

- A) $\sin x e^{\sin x} + c$
- B) $e^{\sin x} + c$
- C) $\cos x e^{\sin x} + c$
- D) None of the above

COMPUTER SCIENCE

- 1) MICR stands for:
 - A) Magnetic Ink Character Reader
 - B) Magnetic Ink Code Reader
 - C) Magnetic Ink Cases Reader
 - D) Magnetic Ink Computer Reader
- 2) The CPU contains:
 - A) CU
 - B) CU, ALU
 - C) CU, ALU, Registers
 - D) CU, ALU, Registers, Display Unit
- 3) Which of the following is an input device?
 - A) Scanner
 - B) Microphone
 - C) Mouse
 - D) All of above
- 4) WORM stands for:
 - A) Write Once Read Many
 - B) Write Once Rewrite Many
 - C) Write Once Read Memory
 - D) Write Only Read Memory
- 5) Synchronization of computer operations is done by:
 - A) User
 - B) Programmer
 - C) Clock
 - D) CPU clock
- 6) Any data input to digital computer is converted into:
 - A) Decimal
 - B) Binary
 - C) Data
 - D) Memory
- 7) System software is the set of programs that enables the computer's hardware devices and _____ software to work together.
 - A) management
 - B) processing
 - C) utility
 - D) application

- 8) A computer program is a set of _____ which tells the computer to perform operations:
A) Code
B) Instructions
C) Lines
D) Binary numbers
- 9) One terabyte is equivalent to:
A) 1 billion bits
B) 1 billion Hz
C) 1 billion bytes
D) 1 trillion bytes
- 10) One of the many advantages of Peer-to-peer network is that:
A) It is inexpensive
B) Its easy to setup
C) It is reliable
D) It have no maintenance cost
- 11) CSMA/CD stands for:
A) Circuit Sense Multiple Access / Collision Detection
B) Carrier Sense Multiple Access / Collision Detection
C) Carrier Sense Multiple Access / Collision Directive
D) Carrier Sense Machine Access / Collision Detection
- 12) Mechanism in which two devices communicate two-way simultaneously, is known as:
A) Full duplex
B) Half duplex
C) Simplex
D) None of them
- 13) Presentation layer deals with:
A) Data representation and encryption
B) Interhost communication
C) Network process to application
D) It is not a layer
- 14) The data unit of physical layer is:
A) Bit
B) Frame
C) Packet
D) Fragment
- 15) Which one of the following topology requires termination?
A) Star
B) Bus
C) Ring
D) Mesh
- 16) Which one of the following is a shortcut commonly used to switch between programs?
A) Alt+shift
B) Ctrl+Shift
C) Ctrl+Tab
D) Alt+Tab
- 17) Video conferencing is BEST described as a communication link used to conduct meetings between people:
A) in different locations, which must be in the same country
B) in different locations, which may be international
C) in the same location
D) in the same company
- 18) Which one of the following groups contains graphical file extensions?
A) JPG, CPX, GCM.
B) GIF, TCF, WMF
C) TCP, JPG, BMP
D) JPG, GIF, BMP
- 19) Slouching in a chair in front of a PC should be avoided because:
A) you tend to fall asleep
B) your work does not get finished
C) you can injure your back
D) vision can be impaired

- 20) A proxy server is used as the computer:
- A) with external access
 - B) acting as a backup
 - C) performing file handling
 - D) accessing user permissions
- 21) Shareware is a software that:
- A) you can buy and share with anyone
 - B) you can use totally free of charge continually
 - C) you can obtain from anywhere but must purchase after a set condition
 - D) can only be shared over an in-house network
- 22) By an intranet we mean:
- A) A LAN of an organization
 - B) A Wide Area Network connecting all branches of an organization
 - C) A corporate computer network
 - D) A network connecting all computers of an organization and using the internet protocol
- 23) Which of the following can cause site connection failures on the internet?
- A) Firewall blocks
 - B) Program errors
 - C) Spam messages
 - D) virus problems
- 24) Among services available on the World Wide Web are:
1. Encryption
 2. HTTP
 3. HTML
 4. Firewalls
- A) 1 and 2
 - B) 2 and 3
 - C) 3 and 4
 - D) 1 and 4
- 25) This is the internet protocol that allows web pages to be displayed in a standard format:
- A) CGI
 - B) HTML
 - C) PERL
 - D) VRML
- 26) What is a 'tuple'?
- A) Another name for a table in an RDBMS
 - B) An attribute attached to a record
 - C) A row or record in a database table
 - D) Another name for the key linking different tables in a database
- 27) A set of instructions specifying how specific records or combinations of records should be extracted is known as:
- A) A report
 - B) A criterion
 - C) A query
 - D) A form
- 28) Which one of the following is NOT true of a foreign key?
- A) It defines a relationship between 2 or more tables
 - B) Related fields must have the same data type
 - C) There must be a primary key in at least one of the tables
 - D) Its field names must match to inner join
- 29) If two tables have the same primary key:
- A) It is perfectly fine, just like foreign keys two tables can have the same primary key
 - B) You must get rid of one table
 - C) You can put the two tables together
 - D) None of the above
- 30) A field, or combination of fields, which uniquely identifies a record in a database:
- A) Foreign key
 - B) Database
 - C) Information
 - D) Primary key

ENGLISH

- 1) 'BRILLIANT' is closest in meaning to:
A) Sparkling
B) Glorious
C) Talented
D) Showy
- 2) The championship game is this weekend _____ I'm feeling a little nervous.
A) since
B) but
C) although
D) and
- 3) The librarian can provide you a/ an _____ edition of the book.
A) abridged
B) summarized
C) abbreviated
D) shortened
- 4) _____ property was damaged by the typhoon.
A) Many
B) Much
C) More
D) Several
- 5) The students will go camping _____ the vacations.
A) at
B) during
C) for
D) in
- 6) Most people are afraid to go _____ the beaten track.
A) from
B) to
C) off
D) against
- 7) We are eager _____ the scientist.
A) to meet
B) meet
C) to have met
D) meeting
- 8) They heard the sirens _____ as the fire-engines approached.
A) to wail
B) wail
C) wailed
D) wailing
- 9) There are many _____ organizations here which need voluntary workers.
A) sympathetic
B) charitable
C) generous
D) sociable
- 10) The building was completely _____ by the fire.
A) obliterated
B) demolished
C) annihilated
D) destroyed
- 11) I can't make _____ what he has written.
A) out
B) up
C) after
D) for
- 12) Have you made _____ your mind about acting in the play?
A) out
B) over
C) up
D) on

- 13) Faisal has made no _____ progress in his studies.
A) notice
B) noticeable
C) noticeably
D) noticed
- 14) I am much obliged to you for your _____ assistance.
A) valuable
B) value
C) valuation
D) valueless
- 15) There is sufficient _____ to charge the man with fraud.
A) data
B) information
C) evidence
D) clue
- 16) The young officer was _____ because of his excellent performance.
A) raised
B) progressed
C) improved
D) promoted
- 17) Mr. Alif Din is a/ an _____ figure in the political scandal.
A) prominent
B) outstanding
C) conspicuous
D) remarkable
- 18) She wears sun-glasses to _____ her eyes from the harmful rays of the sun.
A) prevent
B) protect
C) defend
D) shelter
- 19) Sarwar _____ collect antiques, but now he has other pastimes.
A) used to
B) was used to
C) used to be
D) using to
- 20) The noisy behaviour of the children _____ their teacher.
A) aggrieved
B) impeached
C) tempered
D) incensed

ZOOLOGY

- 1) Book lungs may be found in which of the following?
 - A) Clam worm
 - B) Spider
 - C) Silver fish
 - D) Leech
- 2) Which one of the following animals has no alimentary canal?
 - A) Ascaris
 - B) Pin worm
 - C) Planaria
 - D) Tape worm
- 3) Which of the following animals is sedentary in adult and active in larval stage?
 - A) Sponge
 - B) Leech
 - C) Salamander
 - D) Grasshopper
- 4) Which of the following is included in protostome?
 - A) Amphioxus
 - B) Sea horse
 - C) Cheatopterus
 - D) Sea cucumber
- 5) Aestivation is also known as:
 - A) Spring sleep
 - B) Winter sleep
 - C) Autumn sleep
 - D) Summer sleep
- 6) Which of the following has four chambered heart?
 - A) Lizard
 - B) Turtle
 - C) Whale
 - D) Frog
- 7) Besides mammalian diaphragm is present in:
 - A) Brides
 - B) Crocodiles
 - C) Fishes
 - D) Toads
- 8) Which of the following is a swimming bird?
 - A) Penguin
 - B) Ostrich
 - C) Hawk
 - D) Kiwi
- 9) An enzyme in gastric juice of many infant mammals that precipitates milk protein is:
 - A) Renin
 - B) Pepsinogen
 - C) Gastrin
 - D) Rennin
- 10) Smaller the animal:
 - A) More the rate of respiration
 - B) Less the rate of respiration
 - C) Rate of respiration has nothing to do with size of animal
 - D) None of these
- 11) Rhythmicity of respiration is maintained by:
 - A) The cardiac center
 - B) Ventilation center
 - C) Pons
 - D) Carotid sinus
- 12) Increased production of RBCs is called:
 - A) Leukaemia
 - B) Polycythemia
 - C) Edema
 - D) Anemia
- 13) Hunger centers are located in:
 - A) Hypothalamus
 - B) Cerebellum
 - C) Medulla
 - D) Mid-brain

- 14) When the kidney fails to form urine the condition is called:
A) Nephritis
B) Nephrosis
C) Ptosis
D) Anuria
- 15) A machine that works like kidney for the removal of nitrogenous wastes from the blood is called:
A) Lithotripter
B) Hemometer
C) Dialyzer
D) None of the above
- 16) Heart muscles are called:
A) Smooth muscles
B) Myogenic muscles
C) Striated muscles
D) Skeletal muscles
- 17) Limbic system in forebrain consists of:
A) Hypothalamus
B) Hippocampus
C) Amygdala
D) All of the above
- 18) First crystalline hormone is :
A) Thyroxine
B) Nor-adrenalin
C) Adrenalin
D) All of the above
- 19) Hydra reproduces asexually by:
A) Binary fission
B) Multiple fission
C) Budding
D) Regeneration
- 20) Extra embryonic membranes like amnion and chorion appeared for the first time in:
A) Amphibians
B) Reptiles
C) Birds
D) Fish
- 21) Sperms of which animal can remain viable for years within the female genital tract?
A) Bat
B) Whale
C) Camel
D) Giraffe
- 22) Which germinal layer develops in digestive system?
A) Ectoderm
B) Mesoderm
C) Epidermis
D) Endoderm
- 23) During the development of chick peripheral part of the blastoderm lies unseparated from the yolk and forms:
A) Area pellucida
B) Area opaca
C) Notochord
D) Primitive streak
- 24) Which one of the following diseases is due to point mutation?
A) Down syndrome
B) Klinefelter syndrome
C) Phenylketonuria
D) Turner syndrome
- 25) Condensation of chromosomes reaches to its peak during early:
A) Prophase
B) Metaphase
C) Anaphase
D) Telophase
- 26) An individual has an additional sex chromosome. Which syndrome does it refer to?
A) Down's syndrome
B) Turner's syndrome
C) Jacobs syndrome
D) Klinefelter's syndrome

- 27) The term GENE was coined by:
A) Johnson
B) Corren
C) Tschmarch
D) Purkinje
- 28) If father of a baby is haemophilic and mother is a carrier then chances of the baby in inheriting the disease will be:
A) 0 %
B) 50 %
C) 75 %
D) 100 %
- 29) Tissue plasminogen activator (TPA) is used for:
A) Treating anaemia
B) Bonemarrow transplant
C) Dissolving blood clot
D) Treatment-of cancer
- 30) Urea formation occurs in:
A) Kidney
B) Liver
C) Spleen
D) Lungs

BOTANY

- 1) Who stated this hypothesis? "Mosquitoes are involved in the spread of malaria".
A) Ronald Ross
B) A.F.A-King
C) Laveran
D) Aristotle
- 2) A cloned baby-sheep "Dolly" was identical to the parent that:
A) Gave birth to the Dolly
B) Donated reproductive cells
C) Donated somated cell
D) Both A and B
- 3) Live attenuated vaccines are used to treat all of the following diseases EXCEPT:
A) Cholera and rabies
B) Typhoid and plague
C) Mumps and measles
D) Yellow fever and Rubella
- 4) Which of the following is present in the centre of porpyrine ring of chlorophyll?
A) Iron
B) Sodium
C) Potassium
D) Magnesium
- 5) All of the following are polysaccharides EXCEPT:
A) Cellulose
B) Glycogen
C) Starch
D) Lactose
- 6) All cell membranes are composed of:
A) Proteins
B) Lipids
C) Lipo-proteins
D) Cellulose

- 7) All types of plastids are produced from:
 - A) Chloroplastids
 - B) Proplastids
 - C) Chromoplastids
 - D) Leucoplastids
- 8) Fatty acids are converted into carbohydrates by:
 - A) Glyoxisome
 - B) Bile juice
 - C) Pancreatic juice
 - D) Lysosomes
- 9) The attachment of two sub units of ribosomes on a single mRNA is controlled by:
 - A) Mg^{+} ions
 - B) Na^{-} ions
 - C) Proteins
 - D) Ribosomal RNA
- 10) The shape of polio virus is:
 - A) Polyhedral shape
 - B) Rod shape
 - C) Tadpole shape
 - D) Golf-ball shape
- 11) H.I.V is also known as:
 - A) AIDS
 - B) HAV
 - C) HTLV
 - D) HBV
- 12) "Salmonella typhosa" is a:
 - A) Coccus bacterium
 - B) Bacillus bacterium
 - C) Spirillus bacterium
 - D) Nitrobacterium
- 13) The simplest oxygen producing organisms are:
 - A) Photosynthetic bacteria
 - B) Autotrophic bacteria
 - C) Cyanobacteria
 - D) Chlamydomonas
- 14) The malarial patient feels chill and fever when:
 - A) Merozoites increase their population in RBC and burst open the RBC
 - B) Sporozoites enter the blood stream
 - C) Sporozoites enter the liver cells.
 - D) Merozoites come out the liver cells.
- 15) Carotenoid pigments are present in:
 - A) Euglenophyta
 - B) Pyrrophyta
 - C) Chrysophyta
 - D) Both A and B
- 16) YEAST belongs to the phylum:
 - A) Zygomycota
 - B) Ascomycota
 - C) Basidiomycota
 - D) Deutromycota
- 17) If an organism adopts saprophytic mode of nutrition during part of its life, the organism is called:
 - A) Obligate parasite
 - B) Facultative parasite
 - C) Obligate saprophyte
 - D) Facultative saprophyte
- 18) Microsporum furfur causes:
 - A) Athletes foot
 - B) Ring worm
 - C) Dandruff
 - D) Ergot
- 19) All of the following are gametophytic plants EXCEPT:
 - A) Liver-worts
 - B) Equisetum
 - C) *Funaria*
 - D) Polytrichum
- 20) Equisetum is the living member of:
 - A) Sphenopsida
 - B) Psilopsida
 - C) Lycopsida
 - D) Pteropsida

- 21) Which one is microsporangia?
A) Pollen grains
B) Stamens
C) Pollen sacs
D) Female cone
- 22) All of the following plants possess actinomorphic flowers EXCEPT:
A) Rose
B) Potatoe
C) Apple
D) Pea
- 23) The center of porphyrine ring, the head region of haemoglobin is occupied by:
A) Iron
B) Magnesium
C) Sodium
D) Potassium
- 24) Monotropa is a:
A) Total parasite
B) Total saprophyte
C) Partial parasite
D) Partial saprophyte
- 25) Phloem tissues are composed of:
A) Tracheids
B) Trachea
C) Collenchyma
D) Sieve tubes
- 26) Opening of flower buds and leaf buds, is called:
A) Epinasty
B) Thermonasty
C) Photonasty
D) Seismohasty
- 27) The hormone that causes seed and bud dormancy in plants, is called:
A) Auxins
B) Ethylins
C) Abscissic acid
D) Gibberellins
- 28) During cellular respiration NADH_2 generates:
A) 2 ATP
B) 3 ATP
C) 4 ATP
D) 5 ATP
- 29) Food is preserved in the form of glycogen by:
A) Plants
B) Animals
C) Cyanobacteria
D) Both B and C
- 30) All of the following are non-renewable resources of energy EXCEPT:
A) Forests
B) Iron
C) Petroleum
D) Natural gas

THE END